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**Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/612,260	07/07/00	COHEN	G YOR9-2000-01

028211  
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EXAMINER

KANG, D

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

09/04/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

**Office Action Summary**

Application No.

09/612,260

Applicant(s)

COHEN ET AL.

Examiner

Donghee Kang

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 21-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 & 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2811

### DETAILED ACTION

1. Receipt is acknowledged of the Pre-Amendment filed July 7, 2000.

#### ***Election/Restrictions***

2. Applicant's election without traverse of Group I (claims 1-20) in Paper No. 10 is acknowledged.

#### ***Information Disclosure Statement***

3. Acknowledgement is made of receipt of applicant's Information Disclosure Statement (PTO-1449) filed February 13, 2001 and August 6, 2001.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 2,3,6,7,9,10,11-13,15,16, & 19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not disclose the limitations, "*said first gate comprises a different doping concentration than said second gate*" in claims 2 & 12, "*said first gate comprises a different doping species than said second gate*" in claims 3 & 13, "*said first gate comprises a different material than said second gate*" in claims 6 & 11, "*said first gate comprises a different thickness than said second gate*" in claims 7 & 19, "*said first*

Art Unit: 2811

*gate dielectric comprises a different material than said second gate dielectric*" in claims 9 & 15, and "*said first gate dielectric comprises a different thickness than said second gate dielectric*" in claims 10 & 16.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims **1, 4, 6-8, 11,14, & 18-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Pfiester (US 5,166,084).

Pfiester discloses a transistor comprising (Fig.4):

a channel region (16); a first gate (26) on top of said channel region; a second gate (24) below said channel region; a first gate dielectric (28) below said first gate and a second gate dielectric (14) above said second gate, wherein said first gate and said second gate are electrically separated from each other, wherein said first gate comprises a different material than said second gate, wherein first gate, said second gate and said channel region form a planarized structure, and wherein said first gate comprises a different thickness than said second gate. *See also Col.5, lines 16-18 & 32-42.*

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2811

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims **2-3, 9-10, 12-13, & 15-16** rejected under 35 U.S.C. 103(a) as being unpatentable over Pfister (US 5,166,084).

Regarding claims **2 & 12**, Pfister teaches all claimed limitations as applied claims 1 & 11 above. Pfister fail to teach a doping concentration of first and second gate. It is, however, well known in the art to select the concentration of gate in devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed Pfister's "first and second gate" using a different concentration, since it has held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skills in the art. *In re Aller*, 105 USPQ 233.

Regarding claims **3 & 13**, Pfister teaches all claimed limitations, as applied claims 1 & 11 above, except for species. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layer, *having the materials as claimed*, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims **9 & 15**, Pfister teaches all claimed limitations, as applied claims 1 & 11 above, except that first and second gate dielectric comprises a different material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the dielectric layer, *having the materials as claimed*,

Art Unit: 2811

since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims **10 & 16**, Pfister does not teach the first and second gate dielectric comprises a different thickness. The selection of thickness of various layers in device is an obvious design choice, therefore held within ordinary skills in the art.

10. Claims **5 & 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfister in view of Uesugi et al. (US 5,708,286).

Pfister applies to claims 1& 11 in section 7 above.

Although Pfister fails to teach first conductive contact of first gate and second conductive contact of second gate are coplanar, Uesugi et al teaches in Fig.1 & Col.7, lines 42-46 the first conductive contact (80) of first gate (60) and second conductive contact (90) of second gate (30) are coplanar. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Uesugi with Pfister's device in order to reduce a manufacturing processing.

### **Conclusion**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kurita (US 5,371,401)

Gotou (US 5,120,666)


Art Unit: 2811

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Donghee Kang, Ph.D.  
August 11, 2001

  
Sara Crane  
Primary Examiner